

Amendment to the Claims

Please cancel claims 1 through 39.

40 (New). A label switched router for receiving packet flows and routing the packet flows through a fiber optic ring network, the router comprising:
a routing table that includes label switched working paths and label switched protection paths;
a network interface unit that inserts a routing label on packets and converts the packets to a synchronous optical signal for transmission on the fiber optic ring network;
a network condition unit for receiving and storing a failure indication on overhead of a synchronous optical signal from the fiber optic ring network; and
in response to receiving the failure indication on the overhead of a synchronous optical signal in the fiber optic ring network, a protection path switching unit for determining packets that are to be transmitted on working paths affected by the failure and relabeling the packets for transmission on a label switched protection path in the fiber optic ring network.

41 (New). The label switched router of claim 40, further comprising:
a network condition unit for generating an overhead failure signal to all nodes in the fiber optic ring network in response to a failure condition in an adjacent link or congested traffic conditions on an adjacent link, wherein the overhead failure signal includes information on type of problem and link location.

42 (New). The label switched router of claim 41, wherein the fiber optic ring network is a Synchronous Optical Network (SONET) network and the overhead failure signal is included in K1 and K2 bytes of SONET overhead.

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43 (New). The label switched router of claim 41, wherein the fiber optic ring network is a Synchronous Digital Hierarchy (SDH) network and the overhead failure signal is included in overhead bytes of SDH overhead.

44 (New). The label switched router of claim 40, wherein the network interface unit that inserts a routing label on packets includes a quality of service rating in the routing label.

45 (New). The label switched router of claim 44, wherein the protection path switching unit prioritizes packets to be relabeled on a packet by packet basis for transmission on a label switched protection path by the quality of service rating in the routing label.

46 (New). A method for protection switching in a label switched router with an interface to a synchronous optical network, comprising:

labeling packets to be transmitted on the synchronous optical network over a label switched working path and converting the packets into a synchronous optical format;

receiving a failure indication in overhead bytes of the synchronous optical network that an adjacent link has a failure or traffic congestion;

accessing a routing table that indicates label switched protection paths assigned to each label switched working path; and

labeling packets that were to be transmitted over the failed link to the assigned label switched protection path in response to the failure indication in the overhead bytes of the synchronous optical network.

47 (New). The method of claim 46, wherein the failure indication in overhead bytes of the synchronous optical network is included in K1 and K2 overhead bytes of a synchronous optical network (SONET) frame.